

## Patent Abstracts of Japan

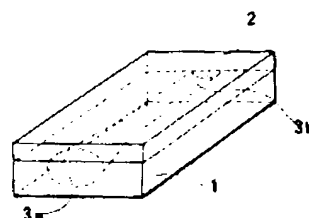
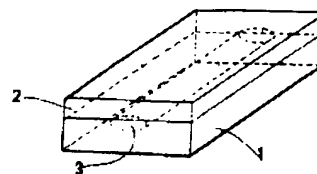
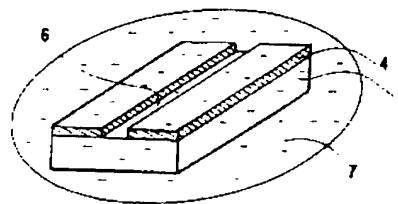
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TITLE : OPTICAL CIRCUIT ELEMENT AND ITS PRODUCTION



ABSTRACT : PURPOSE: To obtain an optical waveguide which has optional spread from a visible part to an IR region with less light loss by diffusing potassium as a dopant on a glass substrate and forming a glass film thereon then diffusing again the potassium.

CONSTITUTION: An Al layer 4 including a groove 6 is formed on a glass substrate 1 contg. Na ion and is immersed in molten  $\text{KNO}_3$  7 to diffuse K ions into the part of the groove 6. A glass film 2 is formed by RF sputtering on the substrate 1. The substrate 1 is heated to diffuse again the K ion, thus forming a diffused region 3 having a high refractive index. The diffused region 3a having ununiform spread is also formable by using a carbon dioxide laser and performing locally distributed heating. The optical waveguide having optional spread from the visible part to IR part with less light loss is thus obt'd.

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